CAPTIONS FOR SLIDE IMAGES:
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The following list captions the slides in order. They include images that are either background information for <u>Interface: Head-up, Head-down</u>, and the images for <u>You Are Here: Kuwait</u>. This is all part of work in progress, and the images you are seeing will be part of multimedia (large-format photos, wall maps, video and computer monitors) installations which will experiment with ideas about space as affected by the kinds of technologies illustrated.

Interface: Head-up, Head-down

The following images describe some of the ways in which the video screen, seemingly opaque and architectural surface representing images from elsewhere, can serve as a (guarded) entryway, a sort of cut in the flow, into the space of information networks, within which our bodies cannot move.

1.   **Graphic interpretation of a network**: at AT&T's "Worldwide Intelligent Network Operations Center," which handles 135 million telephone calls on a typical business day, the 75 screen video-wall displays snapshots of the performance of hundreds of computers within the network in 5 minute intervals.

2.   **Network overload:** telephone traffic into and out of San Francisco Bay area after the October 1989 earthquake. AT&T recorded its highest burst of traffic ever, 1.2 million calls in a five minute period, just after the earthquake struck as millions watched the baseball World Series live from San Francisco.

3.   **CNN newsroom**: the news nowadays often advertises its own technology. When watching the news screen, it becomes apparent that it is open to a network of events and networks, entering and exiting the space (according to certain rules and conventions).

4.   **Citibank automated teller machine ("I'm working on it"):** a familiar <u>touch</u>screen to many New Yorkers. While the screen is "working" -- making a

telephone call to a remote Citibank central data station, checking on the funds available in your account -- you are being photographed by surveillance cameras.

5.   **HUD interface:** a computerized rendering showing a head in relation to a head-up display (HUD) screen: the relation bewteen corporeal space and information space can only be somewhat surreal..

6.   **Military HUD with pilot in foreground:** the fighter pilot is kept conscious at high g-forces by means of a pressurized gravity suit, and his eyes are kept at once on the air space outside the cockpit and on the data flowing through it by the head-up display -- with the "symbology" (alpha-numerics and lines) focused at infinity, i.e. onto the same plane of focus as the exterior objects, thereby collapsing what is traditionally known as depth of field. The pilot "sees" not only through but on the screen, <u>with</u> it like some sort of prosthesis.

7.   **Military cockpit:** a view of what has come to be known as the "glass-cockpit," strangely transparent to an outside not exactly of objects but of networks of information relayed to computers within the cockpit, displayed on its screens and capable of being relayed to the transparent HUD screen in front of the pilot.

8.   **HUD at night:** with night vision equipment and forward looking infrared radar (FLIR), the overlay of information onto the field of attack and operations can go on around the clock.

9.   **Navy carrier deck HUD view:** view through the HUD, from the pilot's seat, of an A-7E on board the aircraft carrier USS John F. Kennedy, during the air war againt Iraq.

Refer to the two attached diagrams which describe the space of the installation.

You Are Here: Kuwait

The following images describe some moments in a multimedia installation which exposes different maps of Kuwait, and different technologies of mapping, to one another. The result: the assumptions, and not simply the spaces mapped, become legible.

10.   **Burning oilfields, Kuwait, 2/23/91:** Landsat image showing complete frame of image field as the satellite passes over Kuwait, some 115 sqare miles. This satellite takes 90 miutes to complete one orbit, and 16 days to return to the same spot. Other images of of the same "scene area" show its pre-war condition (8/31/90), just-ignited oilfields (2/15/91), and the post-war and post-fire condition (11/14/91).

11.   **Kuwait mosaic:** Landsat imagery assembled by National Geographic specifically to show a more complete "theater of operations," and of course, the Kuwait-Iraq border.

12.   **GIS image map of Kuwait:** a satellite image has been recolored as background (or foreground) for a geographic information systems (GIS) map/database. This Intergraph Corp. image of a map on a computer terminal shows the conditon of Kuwait prior to the Gulf War -- already completely mapped, down to the position of every tree in the city -- and was commissioned by the Kuwaiti Government in the mid-1980s. It is composed of two satellite images, one taken Aug 31, 1991 and another taken July 17, 1987; these images are supermiposed onto the Kuwaiti National Database (a database that required eight years to compile) which correlates the digitized satellite data with other mapping data, thereby converting it into a map.

13.   **Kuwait zoom detail:** the Intergraph image map can be displayed on a computer terminal, programmed to zoom in on the image in powers of ten, until the satellite photo decomposes into pixels. In this particular image one pixel on the image finally represents 30 square meters of Kuwait City.

14.   Kuwait National Database (detail): the layers of the satellite image can be removed or "turned off," revealing underlaid "layers" of non-photo data organized as a more ordinary-looking map. What remained invisible to the satellite's sensors can be represented on this map, including data about the location of trees, oilfields, and houses, as well as trnsportation, information, electricity, and other networks.

15.   Intergraph advertisement: The Kuwait image map and its associated database are now being resold to firms taking part in the postwar reconstruction in the rebuilding of Kuwait. The government's total-mapping effort has thus been transformed into an inadvertent historic preservation project.

16.   Highway 6, Kuwait City to Basra, Al-Mutlah Ridge, 2/25-26/91: one frame of video footage displayed by a computer inside the cockpit of an aircraft eqipped with an experimental system (J-STARS) designed to track moving objects, targets, from the air. An example of mapping in real time: the marks represent vehicles fleeing Kuwait for Iraq as the American/Allied ground offensive pushes through Kuwait toward Basra. After the attack enabled by these J-STARS images, the road came to known as the highway of death.

17.   Highway 6, news footage: another view of the highway at Al-Mutlah ridge.

18.   UN Map: the "Gulf War" was precipitated by a dispute over the boundaries of Kuwaiti territory, contested by Iraq throughout most of this century. After the "line in the sand" was drawn by the U.S./Allied coalition, and Iraq forced to withdraw its troops, the UN was given the task of defining the border to avoid further conflict. The mission of the U.N. Iraq-Kuwait Boundary Demarcation Commission was demarcation, not delimitation, said its chairman, because "only countries can delimit boundaries. ...We are just poor technicians trying to draw a line on a map." Cartographers draw the lines, "technically" (as if neutrality were possible, here of all places), on the map and on the ground, and countries decide to agree or disagree. Iraq has disagreed.

AXONOMETRIC DIAGRAM OF "INTERFACE"

1

2   wall

3
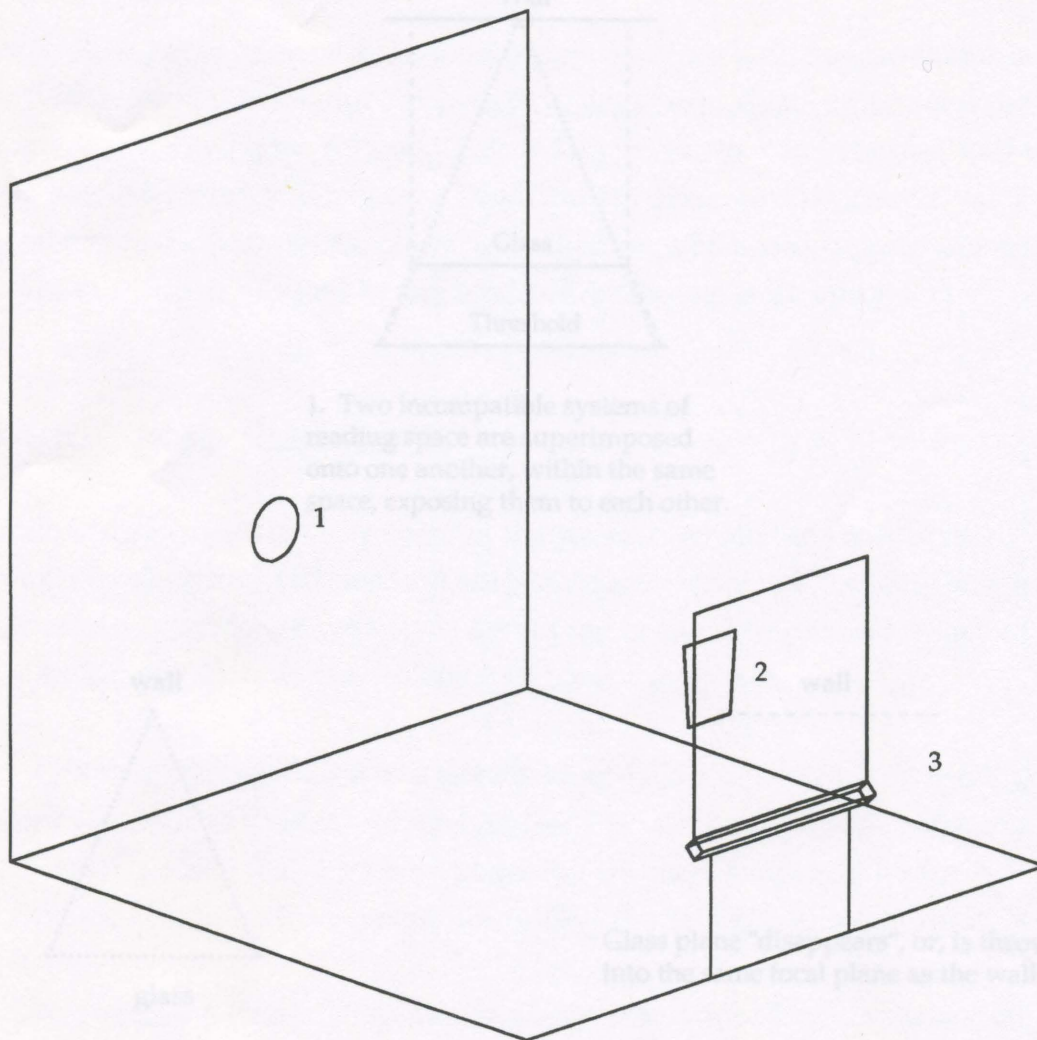
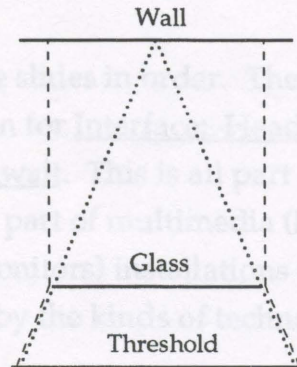1. **Point of Focus**
2. **HUD Screen**
3. **Electronic Handrail**

Wall

Glass

Threshold

1. Two incompatible systems of reading space are superimposed onto one another, within the same space, exposing them to each other.
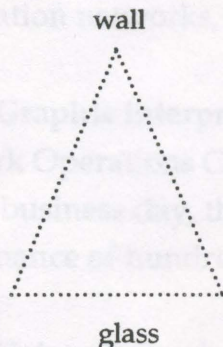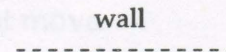
wall

wall

glass

Glass plane "disappears", or, is thrown into the same focal plane as the wall

2. Reading of the space created by interface between viewer and head-down display

3. Reading of the space created by interface between viewer and head-up display

[Note: these diagrams describe only the space between the glass and the wall]

Legend

----- Lines describing space created by interface between viewer and head-up display

.... Lines describing space created by interface between viewer and head-down display

_____ Planes by/through which the 'space' is perceived